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10/734,440	12/11/2003	Hemanth Sampath	MP0389	4615
26200 7590 07/03/2007 FISH & RICHARDSON P.C. P.O BOX 1022 MINNEAPOLIS, MN 55440-1022			EXAMINER HOM, SHICK C	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/734,440	Applicant(s) SAMPATH ET AL.	
	Examiner Shick C. Hom	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2003 and 02 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-76 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-76 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/2/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 6/2/05 fails to comply with 37 CFR 1.98(a)(2); which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. Further, the files on the one compact disc submit on 6/2/05 are not in ASCII. It has been placed in the application file, but the information referred to therein has not been considered.

Drawings

2. The drawings are objected to because a brief descriptive label is required for each numbered items in Fig. 1, e.g. rate adaptation module 104, etc. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended."

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If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 4, 9-11, 27-29, 45-47, 63-65 are objected to because of the following informalities: In claims 4, 10-11, 28-29, 46-47, 64-65 line 2 and claims 9, 27, 45, 63 lines 5-6, the words "a data rate" seem to refer back to "the data rate" recited in claim 1 line 6. If this is true, it is suggested changing "a data rate" to ---the data rate---. Appropriate correction is required.

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Claim Rejections - 35 USC § 112

4. Claims 7-11, 25-29, 43-47, 61-65 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 7, 9, 25, 43, 61, line 3 which recite "a Δ_{RSSI} value" is not clear as to what Δ_{RSSI} value is being claimed.

Claims 8-11, 26-29, 44-47, 62-65 are rejected under 35 U.S.C. 112, second paragraph because they depend from rejected claims 7, 25, 43, 61, respectively.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 55-72 and 76 are rejected under 35 U.S.C. 101 because it is directed to a computer program per se, i.e. merely a set of instructions and in effect a mathematical algorithm, which is not a process, machine, manufacture or composition of matter and thus non-statutory.

Claim Rejections - 35 USC § 103

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7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mahnany et al. (5,483,676) in view of Yavuz et al. (7,075,913).

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Regarding claims 1, 19, 37, and 55:

Mahany et al. disclose a method and apparatus comprising steps and means for determining a received signal quality value from received data (col. 22 lines 11-22 recite determining the quality of the radio link by measuring the signal strength and jitter of the received data); determining a data loss indicator value from transmitted data (col. 1 lines 57-67 recite no loss of information content for acceptable signal quality at the receiver); and selecting a data rate in response to the received signal quality value and the data loss indicator value (col. 14 line 62 to col. 15 line 5 recite the determined signal quality indication being used to select the data rate).

Regarding claims 2, 20, 38, and 56:

Mahany et al. disclose wherein the received signal quality value is selected from an RSSI (Received Signal Strength Indicator) value, an SNR (signal to noise ratio) value, an SINR (signal to interference noise ratio) value, and a SQM (signal quality measure) value, the SQM value comprising a mean of the SNRs across all of a plurality of tones (col. 21 lines 1-7 recite signal quality being based on the received signal strength indicator).

Regarding claims 3, 21, 39, and 57:

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Mahany et al. disclose wherein the data loss indicator value is selected from a retry counter value, a bit-error update value, a data error update value, a symbol error update value, and a CRC (Cyclic Redundancy Check) indicator value (col. 17 lines 5-13 recite the comparing the total number of error against a threshold value to make data rate decision; col. 19 line 7-17 recite using bit error rate BER; and col. 28 line 62 to col. 29 line 5 recite the use of Cyclic Redundancy Check). Regarding claims 4, 23, 40, and 58:

Mahany et al. disclose wherein said selecting comprises selecting a data rate from a plurality of available data rates (col. 2 lines 35-57 recite switching between two or more data rates).

Regarding claims 16-18, 34-36, 52-54, 70-72:

Mahany et al. disclose decreasing the selected data rate in response to the packet loss indicator value increasing as in claims 16, 34, 52, 70: wherein said decreasing comprises decreasing the selected data rate in response to data rate values in a table indexed by available data rates and packet loss indicator values as in claims 17, 35, 53, 71; and selecting a second data rate value directly from the packet loss indicator value in response to the received signal quality value falling below a minimum signal quality value as in claims 18, 36, 54, 72

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(col. 17 lines 5-13 recite comparing number of errors against threshold for selecting the 9600 baud operation and if error is above this level the 4800 baud operation is used).

Mahany et al. disclose all the subject matter of the claimed invention with the exception of the data being packet as in claims 1, 19, 37, 55; generating a confidence value and adjustment value for each of a plurality available data rates using the received signal quality value and the packet loss indicator value; wherein the received signal quality value comprises an received signal strength indicator RSSI value; wherein said generating the confidence value comprises solving an equation; wherein said selecting the data rate comprises selecting a data rate associated with a positive confidence value; wherein said selecting the data rate comprises selecting a data rate associated with a lowest positive confidence value; updating the adjustment value in response to the packet loss indicator value indicating a maximum failure value corresponding to an excessive number of failed packet transmissions; and updating the adjustment value in response to the packet loss indicator value indicating a maximum success value corresponding to an excessive number of success packet transmissions as in claims 5-13, 23-32, 41-49, 59-67; increasing a transmit power for transmitting packets in response to the selected data rate

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falling below a first data rate; and decreasing the transmit power in response to the selected data rate exceeding a second data rate as in claims 14, 32, 50, 68; wherein the second data rate is greater than the first data rate as in claims 15, 33, 51, 69; and wherein the transmitted packets and received packets comply with one of the IEEE 802.11 family of specifications as in claims 73-76.

Yavuz et al. from the same or similar fields of endeavor teach that it is known to provide the data being packet (col. 1 lines 54-61 recite the network being a packet data network); generating a confidence value and adjustment value for the data rates using the received signal quality value and the packet loss indicator value; wherein the received signal quality value comprises an received signal strength indicator RSSI value; wherein said generating the confidence value comprises solving an equation; wherein said selecting the data rate comprises selecting a data rate associated with a positive confidence value; wherein said selecting the data rate comprises selecting a data rate associated with a lowest positive confidence value; updating the adjustment value in response to the packet loss indicator value indicating a maximum failure value corresponding to an excessive number of failed packet transmissions; and updating the adjustment value in response to the packet loss

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indicator value indicating a maximum success value corresponding to an excessive number of success packet transmissions (the abstract recite the data rate multiplier values reads on the confidence and adjustment values as claimed; and col. 5 lines 16-29 recite the signal quality being related to the transmit power clearly reads on the quality value comprising an RSSI value as claimed); increasing a transmit power for transmitting packets in response to the selected data rate falling below a first data rate; and decreasing the transmit power in response to the selected data rate exceeding a second data rate; wherein the second data rate is greater than the first data rate (col. 2 lines 5-19 recite the relationship between power and rate, i.e. higher transmit power is needed to support higher rate); and wherein the transmitted packets and received packets comply with one of the IEEE 802.11 family of specifications (col. 1 line 62 to col. 2 line 4 recite the use of a plurality of operating standards clearly anticipate one of the IEEE 802.11 family of specifications as claimed).

Thus, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to provide data being packet; generating a confidence value and adjustment value for each of a plurality available data rates using the received signal quality value and the packet loss

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indicator value; wherein the received signal quality value comprises an received signal strength indicator RSSI value; wherein said generating the confidence value comprises solving an equation; wherein said selecting the data rate comprises selecting a data rate associated with a positive confidence value; wherein said selecting the data rate comprises selecting a data rate associated with a lowest positive confidence value; updating the adjustment value in response to the packet loss indicator value indicating a maximum failure value corresponding to an excessive number of failed packet transmissions; and updating the adjustment value in response to the packet loss indicator value indicating a maximum success value corresponding to an excessive number of success packet transmissions; increasing a transmit power for transmitting packets in response to the selected data rate falling below a first data rate; and decreasing the transmit power in response to the selected data rate exceeding a second data rate; wherein the second data rate is greater than the first data rate; and wherein the transmitted packets and received packets comply with one of the IEEE 802.11 family of specifications as taught by Yavuz et al. in the communications network of Mahany et al.

The use of data being packet; generating a confidence value and adjustment value for each of a plurality available data

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rates using the received signal quality value and the packet loss indicator value; wherein the received signal quality value comprises an received signal strength indicator RSSI value; wherein said generating the confidence value comprises solving an equation; wherein said selecting the data rate comprises selecting a data rate associated with a positive confidence value; wherein said selecting the data rate comprises selecting a data rate associated with a lowest positive confidence value; updating the adjustment value in response to the packet loss indicator value indicating a maximum failure value corresponding to an excessive number of failed packet transmissions; and updating the adjustment value in response to the packet loss indicator value indicating a maximum success value corresponding to an excessive number of success packet transmissions; increasing a transmit power for transmitting packets in response to the selected data rate falling below a first data rate; and decreasing the transmit power in response to the selected data rate exceeding a second data rate; wherein the second data rate is greater than the first data rate; and wherein the transmitted packets and received packets comply with one of the IEEE 802.11 family of specifications can be implemented by connecting the packet data network; including generating the confidence value and adjustment value for the data rates using the received

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signal quality value and the packet loss indicator value; wherein the received signal quality value comprises an received signal strength indicator RSSI value; wherein said generating the confidence value comprises solving an equation; wherein said selecting the data rate comprises selecting a data rate associated with a positive confidence value; wherein said selecting the data rate comprises selecting a data rate associated with a lowest positive confidence value; updating the adjustment value in response to the packet loss indicator value indicating a maximum failure value corresponding to an excessive number of failed packet transmissions; and updating the adjustment value in response to the packet loss indicator value indicating a maximum success value corresponding to an excessive number of success packet transmissions; increasing a transmit power for transmitting packets in response to the selected data rate falling below a first data rate; and decreasing the transmit power in response to the selected data rate exceeding a second data rate; wherein the second data rate is greater than the first data rate; and wherein the transmitted packets and received packets comply with one of the IEEE 802.11 family of specifications of Yavuz et al. to the network of Mahany et al.

The motivation for using a packet data network; including generating a confidence value and adjustment value for each of a

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plurality available data rates using the received signal quality value and the packet loss indicator value; wherein the received signal quality value comprises an received signal strength indicator RSSI value; wherein said generating the confidence value comprises solving an equation; wherein said selecting the data rate comprises selecting a data rate associated with a positive confidence value; wherein said selecting the data rate comprises selecting a data rate associated with a lowest positive confidence value; updating the adjustment value in response to the packet loss indicator value indicating a maximum failure value corresponding to an excessive number of failed packet transmissions; and updating the adjustment value in response to the packet loss indicator value indicating a maximum success value corresponding to an excessive number of success packet transmissions; increasing a transmit power for transmitting packets in response to the selected data rate falling below a first data rate; and decreasing the transmit power in response to the selected data rate exceeding a second data rate; wherein the second data rate is greater than the first data rate; and wherein the transmitted packets and received packets comply with one of the IEEE 802.11 family of specifications as taught by Yavuz et al. in the mobile communication system and method of Mahany et al. being that it

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provides the desirable added feature of a packet network for communication; more efficiency for the system design since the system uses a known technique of generating a confidence value and adjustment value for each of a plurality available data rates using the received signal quality value and the packet loss indicator value; and more efficiency for the system since the system uses a standard family of specifications for transmitting and receiving packets.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nanda et al. disclose a method and apparatus for controlling data rate of a reverse link in a communication system.

Rong et al. disclose access channel for reduced access delay in a telecommunications system.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shick C. Hom whose telephone number is 571-272-3173. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pham Chi can be reached

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on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SH SH


CHI PHAM
SUPERVISORY PATENT EXAMINER

6/27/07